

Serial No. 10/762,559 2
Docket No. K06-165935M/TBS
(NGB.353)

AMENDMENTS TO THE CLAIMS:

Please add claims 22-32 and amend the claims as follows:

1-8. (Canceled)

9. (Currently Amended) A method of manufacturing a steel for use in a high strength pinion shaft comprising:

providing a steel comprising:

0.45wt% - 0.55wt% C;

0.21wt%-0.45wt% Si

0.50wt% - 1.20wt% Mn;

0.025wt% or less P;

0.025wt% or less S;

0.15wt% - 0.25wt% Mo;

0.0005wt% - 0.005wt% B;

0.005wt% 0.10wt% Ti;

0.015wt% or less N; and

a balance comprising Fe and impurities

hot rolling said steel at a temperature of 700°C to 850°C under a draft ratio at an area reduction of 10% or more to obtain a steel comprising a 3-phase texture of ferrite + pearlite + bainite; and

high frequency hardening the steel,

wherein the steel is devoid of Cr, Cu, Ni and Al,

Serial No. 10/762,559 3
Docket No. K06-165935M/TBS
(NGB.353)

wherein a hardness of said steel before the high frequency hardening rolling and after hot rolling comprises a range of 24 HRC to 30 HRC,

wherein a surface hardness of said steel after said high frequency hardening comprises 650 HV or more, and

wherein a pearlite block size of the steel is 100 μm or less as a circle equivalent diameter.

10. (Canceled)

11. (Currently Amended) A method of manufacturing a steel for use in a high strength pinion shaft according to claim 9, ~~further comprising~~ wherein the steel comprises one or more of 0.20wt% or less Nb, 0.20wt% or less Ta, and 0.10wt% or less Zr instead of a portion of said Fe.

12-16. (Canceled)

17. (Previously Presented) A method of manufacturing a steel for use in a high strength pinion shaft according to claim 9, wherein said steel is fabricated or worked under a temperature in a range of 700°C to 850°C.

18-21. (Canceled)

22. (New) A method of manufacturing a steel for use in a high strength pinion shaft

Serial No. 10/762,559 4
Docket No. K06-165935M/TBS
(NGB.353)

according to claim 9, wherein the steel has a circle equivalent diameter (C_{eq}) which satisfies $0.80 \leq C_{eq} \leq 0.95$, where $C_{eq} = C + 0.07 \times Si + 0.16 \times Mn + 0.20 \times Cr + 0.72 \times Mo$ before high frequency hardening.

23. (New) A method of manufacturing a steel for use in a high strength pinion shaft according to claim 9, wherein a ferrite area ratio is 40% or less before high frequency hardening.

24. (New) A method of manufacturing a steel for use in a high strength pinion shaft according to claim 9, wherein an old austenite crystal grain size in a hardened layer is 8 or more in view of grain size number.

25. (New) A method of manufacturing a steel for use in a high strength pinion shaft comprising:

providing a steel;

hot rolling the steel at a temperature of 700°C to 850°C under a draft ratio at an area reduction of 10%; and

high frequency hardening the steel,

wherein a hardness of said steel before the high frequency hardening and after hot rolling comprises a range of 24 HRC to 30 HRC.

26. (New) The method according to claim 25, wherein a pearlite block size of the steel is 100 μm or less as a circle equivalent diameter.

Serial No. 10/762,559 5
Docket No. K06-165935M/TBS
(NGB.353)

27. (New) The method according to claim 25, wherein the steel comprises:
- 0.45wt% - 0.55wt% C;
- 0.21wt%-0.45wt% Si
- 0.50wt% - 1.20wt% Mn; and
- 0.15wt% - 0.25wt% Mo.
28. (New) The method according to claim 27, wherein the steel has a circle equivalent diameter (C_{eq}) which satisfies $0.80 \leq C_{eq} \leq 0.95$, where $C_{eq} = C + 0.07 \times Si + 0.16 \times Mn + 0.20 \times Cr + 0.72 \times Mo$ before high frequency hardening.
29. (New) The method according to claim 25, wherein a ferrite area ratio is 40% or less before high frequency hardening.
30. (New) The method according to claim 25, wherein an old austenite crystal grain size in a hardened layer is 8 or more in view of grain size number.
31. (New) The method according to claim 25, wherein the steel is devoid of Cr, Cu, Ni and Al.
32. (New) The method according to claim 25, wherein a surface hardness of said steel after said high frequency hardening comprises 650 HV or more.